March 29, 2006

umlshuttle

A Publication of the University of Massachusetts Lowell

Transformation Critical Issues Sessions Scheduled for April

Participants to Discuss Details of $300 Million Master Plan

A series of Transformation critical issues sessions will be held during April to give members of the University community an opportunity to discuss details of a master plan that calls for a major consolidation of colleges, modernization of facilities, promotion and expansion of research and the upgrading of basic services.

Diana Prideaux-Brune, vice chancellor of Facilities, calls this a "draft" master plan to which appropriate changes can be made after all members of the community have had a chance to study its proposals and make their views known.

"We hope to have a final draft ready to present to the Board of Trustees in the fall so that bonding approvals can be obtained," she says.

"The plan is really a guideline, a dynamic document that gives us a direction. Needs, resources and individual projects might change but this guideline is there to make sure that everything we do is consistent—that each project is consistent with the next."

▲ Vice Chancellor Diana Prideaux-Brune discusses the master plan with Project Managers Roger Hall, center, and Hector Valdes.

The critical issues sessions will be held on April 6, 13, 20, 21, 27 and 28, alternating between UML North and South locations. Four or five of them will be by invitation to ensure that all segments of the University community are represented. The other sessions will be open to all interested parties, although the number of attendees will necessarily have to be capped. In addition, one or more evening sessions will be scheduled for alumni and students. And, finally, if some individuals have not had an opportunity to take part, more sessions will be scheduled.

Continued on Page 2

Martin and Analog Devices Develop New Controller for Robotics Design

$25,000 Grant Will Support Development of Robotics Courseware

Analog Devices, Inc. (ADI) and UMass Lowell have collaborated to develop the "Blackfin Handy Board"—an updated version of the hand-held controller board for educational robotics applications that is used by hundreds of colleges and universities in undergraduate engineering and robotics courses. This new version is a state-of-the-art robot controller board based on the high-performance Blackfin Processor from ADI.

Asst. Prof. Fred Martin of computer sciences designed the original "Handy Board" robotics controller while he was a student at MIT; Martin will present tutorials on the new Blackfin Handy Board architecture at the Embedded Systems Conference in April in San Jose.

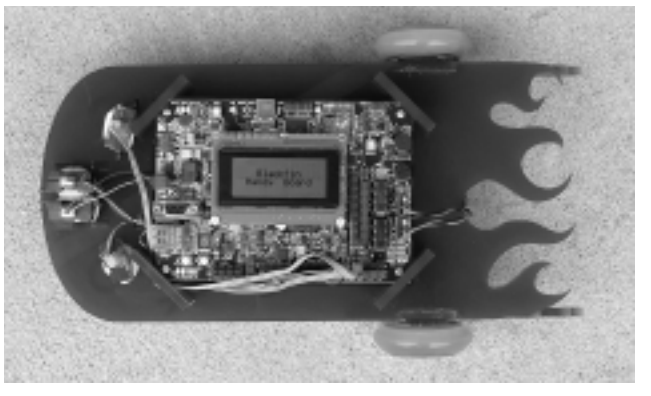
In addition to donating design services valued at more than $100,000, ADI is awarding Martin a $25,000 grant to develop on-line courseware for teaching undergraduate robotics courses using the new design. Additionally, ADI will supply UMass Lowell with Blackfin Handy Board units and funding to hire a graduate student to contribute to the board's development.

The new Blackfin Handy Board provides significant feature enhancements over earlier versions. While the old design provides control loop functionality to run various robotic motors, the new design provides advanced image processing techniques that can be embedded in the main algorithms. Additionally, the new Handy Board exposes students to advanced processing technologies that are taking over the next generation of products.

"The Handy Board is a big part of undergraduate robotics education all over the world," says Martin, who leads classes in which students design and build a robot for the Autonomous Robot Design Competition. "With ADI's Blackfin Processor, we will be able to add computer vision and signal processing to classroom robotics, which is a significant upgrade for Handy Board users."

"Working with Dr. Martin on the Blackfin Handy Board project is a great way for us to provide students with the tools to prepare for their careers after graduation," says Derek Leadbetter, director of DSP Development Tools at Analog Devices. "It is also a good way to introduce real-world technology to university students, allowing them to see first hand the versatility and power of Blackfin."

—SS



▲ This robot using the Blackfin Handy Board was designed by graduate students Andrew Chanler and Mike Baker.

Massachusetts Technology Transfer Center Awards Grant

Mil'shtein Will Assess Commercial Potential of Invention

Prof. Sam Mil'shtein of the Electrical and Computer Engineering Department has won a $5,000 Assessment Award from the Massachusetts Technology Transfer Center (MTTC). His proposal involves high performance transistors applied to radio frequency and wireless transmissions, and the grant will fund evaluation of the technical capability and customer needs.

Based on earlier research on multi-gate transistors, Mil'shtein's group recently developed a new technology—a universal method to improve the performance of field-effect transistors. Beebe Nelson, visiting assistant professor of marketing, is collaborating on the project and will lead the market-test interviewing at companies. Both are working with Paul Wormser of the office of Commercial Ventures and Intellectual Property.

The MTTC was created in 2004 as a program in the Massachusetts Economic Stimulus Bill. Its goal is to support technology transfer activities from public and private research institutions to companies in the state. The MTTC is based in the UMass President's Office.

The assessment awards, though small, provide crucial funding to validate the commercial viability of new technology. In the highly competitive process, researchers also value the critiques from external reviewers who are knowledgeable about commercial issues.

Mil'shtein's grant was one of just five awarded for the assessment of a new technology's commercial application; the MTTC also awarded five Technology Investigation Awards to demonstrate a new technology's viability. More than 60 proposals were submitted for the 2006 round of awards and they included technologies from 18 different universities

Continued on Page 2

IN OTHER NEWS

Segway Man —
Mark Sherman says he loves his two-wheel, battery-powered mode of transportation.

UML Hosts New England Poetry Conference —All-day event will feature well-known poets, discussion on poetry, and is open to all campus poetry lovers.

Engineering Week —Ceck out UML Idol Winner Eric Belmonte, best student singer in Engineering, by going to eNews. .

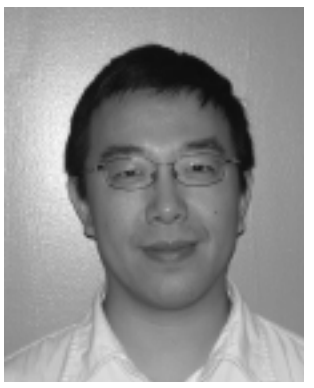
To see these and other stories, go to UMass Lowell's new online eNews Web site at www.uml.edu/enews

Prof. Chen's Research Enhances Emergency Scene Communications

Work Relates to Cyber Security and Disaster Response

Asst. Prof. Guanling Chen of Computer Science is conducting research designed to greatly enhance the ability of emergency scene "first responders" to communicate video, voice and data information to command units and other first responders.

Chen—whose areas of interest include wireless networks, cyber security and disaster response information systems—explains that wireless communication can be vital at emergency scenes where other forms of communication may have been interrupted.



▲ Guanling Chen

Some of these wireless systems are quite sophisticated.

One example is that of tiny sensors—each about the size of a quarter—that can be scattered at the scene of a fire or other emergency. These sensors can transmit data—such as heat, smoke, chemical levels, etc.—to command centers and responders.

These same sensors may be attached to the bodies of victims to transmit vital signs, information that enables remote centers to advise first responders on the scene as to what action they should take.

Again using wireless communication, command centers can send first responders information such as updated environmental situation reports (fire and smoke reported by the sensors) overlaid on floor plans of buildings in which they're working, or the location of other responders in the area.

Chen is working to improve the traffic flow from these various sensors and wireless devices carried by first responders, solving problems such as limited bandwidth and noise, which can interfere with this communications system. He also is looking into the means of determining which types of information should take precedence based on their relative importance. Because wireless links are shared, medium and low-priority traffic must yield in times of congestion.

"This work responds to a recent Statement of Requirements issued by the Department of Homeland Security on the need for research to improve wireless communications for public safety purposes," Chen says.

Chen also leads another related research project, funded by Homeland Security, which has to do with the detection of intrusion in the event that someone purposely tries to interrupt wireless communications.

"In this case," he says, "the goal is to find the source of the intrusion and determine how it is being done before initiating automatic responses, such as blocking the intruder or switching the emergency system to different frequencies."

Continued from Page 1

Transformation Critical Issues Sessions Scheduled for April

The plan will be divided into two major projects. The University will pay for the first part by borrowing $120 to $150 million. The state will be asked to match that amount to finance the second part, resulting in a total cost of about $300 million.

"We'll do the most critical projects in phase one," Prideaux-Brune says, "even if the state does not come up with matching funds. We can live without part two if we have to."

The goals of the plan are to consolidate the colleges to encourage as much interdisciplinary work as possible; to modernize facilities to make the University a warm and welcoming place in which to teach, learn, work and conduct research 365 days a year; to upgrade research capabilities, of which the new research building will be a large component; to upgrade basic services such as parking, and to install uniform technology in all classrooms throughout the University.

Flowing throughout the plan will be the resolve to make optimum use of green materials, renewable energy, energy efficiency and the need to be as environmentally aware as is possible for an urban campus, according to Prideaux-Brune.

Some of the specifics of the plan would be as follows:

As part of the consolidation of colleges, all the humanities departments would be located on UML South, requiring major renovations to the Coburn, O'Leary and Mahoney buildings.

The School of Health and Environment would move to Pasteur and Southwick on North.

The Art Department would be consolidated in Weed Hall.

Eames and Smith residence halls would be home to the College of Management and the centers for Teaching, Learning and Careers. Lower floors in Fox Hall, now used for offices and other purposes, would be converted to residence areas to absorb the student space vacated in Smith and Eames.

The paper collection of the libraries would be consolidated in the upper two floors of Lydon Library, converting the lower floors there and in O'Leary to electronic libraries, computer laboratories and study areas.

— JMcD

Continued from Page 1

Massachusetts Technology Transfer Center Awards Grant

and research institutions in diverse fields. The awards were made to investigators for new commercial applications of technologies that include medical devices, clean energy technologies and water purification.

▲ Beebe Nelson and Sam Mil'shtein

Dr. Abigail Barrow, director of the MTTC, says, "There were many more promising technologies that could benefit from funding than we could award in this solicitation. The MTTC looks forward to working with the awardees to support the commercialization of these technologies in Massachusetts and we also hope to work with the investigators at the institutions that didn't win awards in this round, to help them find other sources of funding and commercialization partners."

More information is available at www.MaTTCenter.org.

—SS

Online Auction Begins April 21

Fundraiser to Support Costello Gym Renovations

An online auction to raise funds for the renovations at Costello Gym will begin at 8 a.m. on April 21 and continue to May 15. Called the "Home Court Advantage Online Auction," the fundraiser will offer donated items for bid in an eBay-type setting with final bids due on May 15. For a full list of items up for bid, visit umlauction.cmarket.com.

All money raised will help fund the installation of a new floor, bleachers, scoreboard and sound system for the gym, which was built in the 1960s. The renovations started in March and the rest of the work will progress as funds are available. Athletic Director Dana Skinner says he hopes the entire project, which is estimated to cost $750,000, will be finished by September.

Items up for bid include a four-day trip for two to New York City at the New York Marriott Marquis, a seven-day vacation at a private Caribbean villa, Red Sox tickets, a birthday pool party and a UML hockey VIP package.

Alumni and others who would like to contribute items to the auction should contact umlauction@cmarket.biz. Regardless of the ultimate selling price, the full value of the donated item can be deducted for tax purposes. For more information, contact Sheila Capone at 978-934-4817 or Sheila_Capone@uml.edu.

Luo's Research Advances Processor Technology

Make Information—and More Information—Go Faster, Safely

"This is an interesting problem," says Yan Luo, "how to explain very technical concepts in common language."

Fortunately for his students, Luo, assistant professor in the Electrical and Computer Engineering Department, explains things very well. Luo teaches a required undergraduate course in microprocessors and a graduate course on advanced computer architecture.

Computer architecture is also the focus of Luo's research, particularly the processors that are specialized for network or packet processing. Packets are bunches of information and, as they travel through the Internet, they reach different processing locations.

"With all the new applications, such as Voice over Internet Protocol (VoIP), these new requirements make the processing more complicated," explains Luo. "We are working on speeding up the processing by using multiple programmable units on a single chip. Of course, that raises issues: how to partition the work, power consumption and heat." Most of all, the system must be "scalable," so that increasing numbers of packets can pass through nodes without losing speed.

Intel has made a $25,000 grant to Luo for a project using a network processor to build a scalable deep packet inspection system—that is, to closely and carefully inspect packets for viruses or malicious code as they are processed. Luo intends to show the work can be done on an intelligent processor.

▲ Yan Luo with a network processor

Intel has made an equipment grant to Luo's second major research area: wireless mesh network routers. A little explanation is in order.

Walk around campus and you'll come across posters advertising wireless "hot spots"—areas in which you can operate a laptop to access the Internet without plugging in. These wireless domains work because each access point is connected to the Internet through wiring.

Wireless mesh network routers, on the other hand, are connected wirelessly to each other and only one is connected by wire to the Internet. The routers forward packets to other network routers wirelessly, offering tremendous flexibility in setup.

"Some products are based on this technology already," says Luo. "The most important unsolved issue is scalable bandwidth, so speed doesn't diminish with volume." One of Luo's graduate students is developing intelligent routing algorithms to build up the network cooperatively.

Interesting applications include disaster relief, in which the first responders can deploy wireless nodes, perhaps attached to cameras and environmental sensors, that provide information to the command center. Luo is working on sensor networks with the Center for Network Information and Security, directed by Computer Science Prof. Jie Wang.

Small sensor nodes, deployed in networks, can be used for environmental monitoring or to monitor the status of patients in hospitals or in their homes.

"The sensors could capture bioinformation that is transmitted through a low-power, low-range wireless network," says Luo. "We're working to develop even smaller, programmable nodes to carry and direct more information."

Luo is also part of a team at the Center for Atmospheric Research that is working to adapt and upgrade existing radio frequency instruments, the Digisondes. Says Luo, "Our efforts are to make the data acquisition and processing in their radio plasma monitoring based solely on digital technology."

UML Campus Transformation Project

The Advising Team explores innovative advising practices to improve faculty-student experience. To read more about the Campus Transformation Project go to: http://uml.edu/Media/eNews.

NIOSH Town Meeting Gathers Input on Research Agenda

Safety and Health of Immigrant Workers a Focus

More than 60 people testified on campus recently at one of 13 regional public hearings held around the country to inform the federal government's research agenda on occupational safety and health.

Immigrant workers, teens, union leaders and health and safety advocates urged the federal government to focus research on the needs of immigrants, teens and health care workers.

▲ Prof. Margaret Quinn of Work Environment testifies on health and safety research issues in the health professions. Prof. Susan Woskie, left, also testified regarding NIOSH's National Occupational Research Agenda.

Seven teen health and safety advocates made recommendations to stem the escalating rate of injuries and fatalities among teen workers. Raquel Lamons from the Massachusetts Coalition of Occupational Safety and Health (MassCOSH) said, "Each year, 70 teens are killed on the job. That is about one every 5 days. Over 200,000 working teens are injured and 70,000 teens are injured seriously enough to require hospital emergency room treatment. Teens are often asked to do dangerous work but lack power and information about their rights in the workplace."

Cora Roelofs of Work Environment said, "Immigrants and workers of color often work in the most dangerous jobs. They are frequently unaware of their rights and fear retribution from their employers if they speak up. They have also been underserved by research money in the past."

The concerns of the health care industry also were aired. Representatives of the Massachusetts Nurses Association (MNA), university researchers, and health care professionals discussed safe patient handling, violence in the workplace, exposure to hazardous drugs and needle stick injuries.

The Lowell meeting was held to gain input for the National Occupational Research Agenda (NORA) for NIOSH. The results of this hearing, and others around the country, will help set the agency's national occupational safety and health research agenda for the next decade. For more information, see http://www.cdc.gov/niosh/nora/townhall/default.html

UMass Lowell's School of Health and Environment and the Harvard School of Public Health jointly hosted the forum with the National Institute of Occupational Health and Safety (NIOSH).

Snapshots and Change: UML Hosts Events for Women's Week

▲ Keynote speaker Ashley Tsongas, left, and Lowell Women's Week Committee Member Crystal Caron celebrate this year's theme: "Our Common Wealth: Changing the State of Women's Power." For more on the events of Women's Week, go to eNews on the UML website.

▲ Rev. Imogene Stulken offers her opening reflection as Prof. Anne Mulvey looks on during the 11th Annual City of Lowell's Women's Week in early March. UMass Lowell was one of many sponsoring organizations throughout the city.

Gender Studies Fellows Program Receives Funding

◀ Gender Studies Fellows for 2005-2006, from left, Anne Mulvey, Mignon Duffy, Paula Rayman and incoming director Julie Nash celebrate their recent approval for funding for the Gender Studies Teaching Fellowship. For more information, see "Crossroads of Education" on eNews, www.uml.edu/eNews.

Events Reign in April

Former Governor Cellucci Kicks Off Busy Season March 30

When it rains, it pours" aptly characterizes the month of April on campus—and not just because of the weather.

"It's the time of year," says Rick Sherburne, director of Special Events. "We have about 80 events booked from mid-March through the end of the semester. That includes everything from banquets to exhibits to conferences."

A preview to the busy month features former Gov. A. Paul Cellucci, who will speak to the state and local politics class on Thursday, March 30, at 11 a.m. in O'Leary 222.

On April 6 from 8:30 a.m. to 12:30 p.m., the Center for Women and Work's annual "Gathering at the Well" will focus on trafficking of women and children, with Prof. Emerita Jean Pyle as keynote speaker. Visit http://www.uml.edu/centers/women-work/ to register.

On April 11, Lowell's current State House delegation will appear in O'Leary 327 at 11 a.m. to speak to the state and local politics class, and on the 12th, the Second Annual New England Poetry Conference will be held in O'Leary Library 222 starting at 10 a.m. The event will be hosted by the Jack and Stella Kerouac Center for American Studies and the UMass Lowell English Department. Visit www.uml.edu/PoetryConference for more information.

On the 25th, diners will get food for thought at a conversation dinner led by former state senator and former head of the Human Rights Campaign, Cheryl Jacques. Jacques is a national leader in the gay civil rights movement. The program begins with a reception in the Alumni Hall Lounge at 3 p.m. Jacques also will speak to the state and local politics class at 11 a.m. the same day, in O'Leary 327.

▲ **Rick Sherburne, director of the office of Special Events, and Donna Spellissy, special events coordinator.**

And students will be showing off their hard work for the year. Candidates for a bachelor of fine arts will exhibit their works at the the BIG student Show in Dugan Gallery beginning April 12. And the Ninth Annual Student Research Symposium will be held in Cumnock Hall on Tuesday, April 25, from 10 a.m. to 12 p.m.

Award-Winning Playwright Discusses Her Craft

Author's Comments are Part of the Common Text Program

The award-winning African American playwright Lynn Nottage came to campus last month to discuss her work. Her play, "Intimate Apparel," won the 2004 New York Drama Critics Circle and Outer Critics Circle Awards and has just completed a successful run at Lowell's Merrimack Repertory Theater (MRT).

"Intimate Apparel," the early twentieth-century story of an African American seamstress in New York City, was the most-produced play in the country in 2005. The story, based on the life of Nottage's great-grandmother, came from the playwright's desire to "create something beautiful and life-affirming" after the death of her mother.

Nottage spoke to students, faculty and staff about how she became a writer ("I didn't decide what I wanted to do until after I graduated from college."), the process she uses to write ("On a computer. When I'm blocked, I go back to doing more research.") and the experience of being a playwright ("I'm not interested in writing fiction because I'm too social. When a piece of work is finished, I want to sit in a room with a group of people and talk about it.").

Nottage's campus visit was part of UML's common text program in which the entire first-year class reads a non-fiction text each fall and a play each spring. The play is one of MRT's spring productions, which students see. In addition to Nottage, the program included several campus visits by the cast of the MRT production.

▲ **Following a discussion of her craft, award-winning playwright Lynn Nottage, third from left, joined members of the English faculty, including, from left, Paula Haines, Nancy Selleck, Department Chair Melissa Pennell, Gigi Thibodeau, and Jeannie Judge.**

UML as Seen From Above

See Flyover Video of the Campus

Do you shudder when you think about making it through bridge traffic to visit the "other" campus? Here's an alternative: flyover footage that gives you a look at all of UML from the air.

In the fall, the campus created three TV ads that ran on local network affiliate stations during January. During the making of those ads, the office of Public Affairs contracted for flyover footage of the campus. Several seconds of that video were used in the TV ads. The final one-and-a-half minutes of edited footage is bing screened on the HAWKi information system monitors throughout campus and on the web at www.uml.edu/media/video/default.html

It was difficult to schedule this shoot because the helicopter, the pilot, the mount for the camera, the camera and the cinematographer had to be scheduled independently. The producers also wanted good weather—clear, not too windy—and foliage at peak color. After scheduling and re-scheduling several times, the right conditions finally appeared on Oct. 20.

The difficulties in scheduling the shoot meant a few elements had to be abandoned. After a week of rain, the Merrimack River was running dangerously high—too high to put UML crew teams on the river. Oct. 20 also turned out to be a day with most teams playing away games, so the athletes on the playing fields of UML North are almost all from the fall track and field teams.

The equipment providers, video crew, University team and pilot—after dodging a golf ball shot from the adjacent field—met along the north side of the Merrimack at 3 p.m., loaded the film, mounted the camera, and tested the video equipment. Then the pilot, the cinematographer and the assistant camera person took off. They flew for two and a half hours, shot 1,200 feet of film (approximately 33 minutes worth), and landed twice to re-load film.

When they first lifted off, they headed north toward the campus and immediately dipped low over the river, actually below the tree line. They did multiple passes of the campus and surrounding areas, flew into Boston to shoot the Zakim Bridge and the skyline, and then came back for more river and campus shots.

As sunset approached—bringing with it the time that film-makers call "magic hour" because of the dramatic lighting—members of the UML faculty and staff turned on the lights in their offices and classrooms, bringing a special glow to the campus. See what you think of the result.

The Shuttle is published by the Publications Office, UMass Lowell, One University Avenue, Lowell, MA 01854 Tel. 934-3223.

Executive Vice Chancellor: **Dr. Frederick P. Sperounis**

Executive Director of Communication **Patricia McCafferty**

Editor: **Mary Lou Hubbell**

Staff Writers: **Geoffrey Douglas** **Jack McDonough**

Other Writers: **Renae Lias Claffey** **Jessica Cornell** **Jennifer Hanson** **Elizabeth James** **Kristen O'Reilly** **Sandra Seitz**

University of Massachusetts Lowell

Publications Office
University of Massachusetts Lowell
One University Avenue
Lowell, MA 01854

Non-Profit Org
U.S. Postage
PAID
Lowell, MA 01854
PERMIT No. 69

Deadline for the Next Issue of the Shuttle Is April. 7